GENERAL NOTES.

GEOGRAPHY AND TRAVEL.[1]

AMERICA.—THE INTERIOR OF LABRADOR.—Mr. R. F. Holme recently read to the Royal Geographical Society an interesting account of a journey to the interior of Labrador. Although the coast is utterly bare and treeless, a luxurious forest growth commences at a distance inland of about twelve miles, and clothes the whole of the country except the barrens or moors, which are the home of the caribou. Mr. Holme has ascended all the rivers that flow into Hamilton Inlet as far as navigable in a boat. One of the most important of these is the Kenamou, used as one of the routes from the south. By far the largest river of this district is the Grand, which is the name given to the channel connecting Lake Petchikapou with Goose Bay, at the head of Hamilton Inlet. Grand River is really only a portion of a continuous water-way of rivers and lakes connecting Goose Bay with Ungava Bay. Lake Wiminikapou is situated about 150 miles from the mouth of Grand River, and thirty miles above that long and narrow lake are the Grand Falls, the height of which is not known, but which may prove to be among the most stupendous in the world. The elevation of the Labrador table-land is given by Professor Hind at 2240 feet, and at least 2000 feet of this are in the thirty miles between the head of these falls and the lake below.

Lake Petchikapou, one of the largest of the interior lakes of Eastern Labrador, is connected with the ocean not only by Grand River, but by Nascopee River and Grand Lake. The Indians of the interior of Labrador are all of the Cree nation, and are perhaps the most unadulterated Indians to be found on the continent. A. G. Guillemard, in a note to the May number of the Proc. Roy. Geog. Soc. suggests that possibly the Grand Falls of Grand River (Labrador) might be reached more readily by following up the Moisie River from the Gulf of St. Lawrence and skirting Lake Aswanipi. He also says: "The fall from a height at all approaching 2000 feet of a river 500 yards in width a short distance higher up, would form one of the wonders of the world, and would surely have been described by Mr. Maclean after returning from his visit in 1839. Mr. Guillemard mentions among waterfalls combining great volume of water and great height, the Garsoppa Falls in Western Hindostan, 300 yards wide and 830 feet high, and the Kaieteur Fall of the Potaro River in British Guiana, 123 yards wide and 741 feet in vertical height.

[1] Edited by W. N. Lockington, Philadelphia, Pa.

RAINFALL WEST OF THE MISSISSIPPI.—General A. W. Greely recently gave to the Washington Philosophical Society the partial results of the charting of recent observations on the rainfall west of the Mississippi. The number of observing stations has been doubled during the past ten years, and the result of the observations has been to greatly reduce the areas of small rainfall. The area in which less than fifteen inches per annum was supposed to fall has been diminished one quarter of a million of square miles since the census map of 1880. In some places where the precipitation was supposed to be five inches or less the actual rainfall is as much as sixteen inches and in one spot was found to be thirty-seven inches. General Greely explained that the small average of rainfall formerly reported in Southern California, was partly due to the fact that most of the observing stations were situated on the line of the Pacific Railroad which, seeking low gradients, had been built through a section of the country where the precipitation was small. General Greely, moreover, thinks that the prevalent opinion that the rainfall in the West is increasing, is correct.

ASIA.—THE PROVINCES OF KARS AND SEMIRECHINSK.—According to a report upon the province of Kars (until the last Turco-Russian war a portion of Asiatic Turkey) drawn up by Prince Masalsky, the Russian immigrants into that province are not in a prosperous condition. The motley population consists besides Russians, of Turks, Armenians, Yezidis, Kurds, Greeks, Turcomans and Circassians. The province of Semirechinsk (Turkistan) had a population of 758,258 in 1885. Of these 595,000 were Kirghis, the original inhabitants. Russian colonization is continually going on, but only the central portion of the district of Vernie is yet really Russian. Large numbers of Dungans and Taranchis have recently settled in this district.

THE MOGOK RUBY MINES, BURMA.—One of the finest sanitariums in India is that of Bernard-Myo, on the broad rolling plains of Enjouk, on the northern slopes of the hills bounding the ruby mining district of Mogok, Burma. Bernard-Myo is over 6000 feet above sea level. The ruby mining district may have a population of over 6000 people belonging to many different tribes. The mines are of three kinds: the working of fissure veins; washing in a somewhat similar manner to the hydraulic mining in California; and what may be called placer diggings. The third class of mines is at present the most important. At depths varying from ten to thirty feet, in the flatter lands of the valleys, there occurs a layer of corundum from a few inches to a few feet in thickness. When this corundum is brought to the surface myriads of small rubies glitter in the sun. Almost all the stones are water worn or of irregular shapes, and it is rarely that a flawless ruby is found. So rare is a ruby of the finest water that one of three carats is worth ten times

the value of a diamond the same size. The district of Mogok is situated between Mandalay and Bhamo and is nearer to the former place.

THE BIRDS' NEST ISLANDS.—The records of the Geological Survey of India (vol. xxi. pt. 1) have some information concerning the remarkable group of islands called by the Burman's Ye-ei-gnet thaik or Seabirds' Nests. These islands consist of six marble rocks to the southeast of Dumel Island at the southern extremity of Burma. The largest is a thousand feet high, about a mile in length, and of an oval shape. The great feature of the group are the birds nests caverns, which as a rule open into the sea. In other parts of the island are great caverns opening into circular basins, and Commander A. Carpenter, who writes the account, states his impression that these circular basins were at one time the floors of huge caverns, and that in past times the islands were far higher, with cavern over cavern.

AFRICA.—THE TRANSVAAL.—The configuration of the Transvaal Republic, according to Dr. A. Schank, is determined by mountain ranges; the Drakensberg range rises to a height of 7000 feet and traverses the country from North to South, presenting a steep declivity on the East and a gradually sloping table land on the West. The Eastern and smaller part of the Transvaal consists mainly of a series of low granite mountains. A series of parallel chains extend east and west through the country and divide it into a southern portion (the Hooge Veld) and a less elevated northern portion (the Bosch Veld). The former is connected with the plateau of the Drakensberg and enjoys one of the healthiest climates in the world.

VAN GÈLE'S ASCENT OF THE MOBANGI.—The "Mouvement Géographique" of April 22, 1888, contains details of Lieutenant Van Gèle's recent ascent of the Mobangi. Van Gèle left Equator Station Oct. 27th, 1887, and on Nov. 21st reached the foot of the Zongo rapids, the spot at which the Rev. G. Grenfell was turned back in 1884. These rapids extend over a distance of twenty-four miles, and are six in number, but the steamer *En Avant* succeeded in passing them, though she had to be unloaded before she could pass the fifth, which consists of a group of islands connected together and with both banks by a rocky bar forming rapids and two falls. The banks of the river on both sides along the line of the rapids are bordered with gently sloping hills, studded with villages and presenting alternations of woods, meadows, maize fields and banana plantations. The villages on the river bank are palisaded in front and watch-posts are established in the cotton-trees. As far as Belly, in the middle of the cataracts the natives have their heads shaved except at the nape and wear fierce-looking moustaches. Above

Belly the Bakombe form the population and are distinguished from their neighbors by their method of wearing the hair, which extends behind in queues sometimes seven feet long. After passing the sixth rapid, at Mukuangai, the river comes from the northeast free from all obstacles and the view is described as superb. It has a width of about half a mile and an average depth of fourteen feet. After about twenty-two miles it bends eastward and continues in this direction as far as was navigated by Van Gèle (above 172 miles). Along this stretch the natives call it the Dua. The people on the right bank of this portion belong to the Buraka and Maduru tribes, those on the left to the Bakangi, Mombati, and Banzy. They shave the head so as to leave a little triangle of hair on the forehead, and wear immense copper rings or wooden cylinders in their ears. The native huts are cone-shaped, rest on a wall of stone about 2 feet high, and are neatly arranged in rows forming broad streets around a central building used as a common meeting place. These people work iron into all sorts of implements, weapons and ornaments. In this reach of river there are many islands, most of them inhabited and cultivated. A rapid was passed at about 130 miles above the Zongo rapids and twenty-five miles further east another was met with at which the steamer had to be unloaded. About twelve miles above this rapid (21° 30′ E. lon.) the Bangasso discharges into the right bank of the Mobangi. Up to this point the natives had invariably been friendly, offering for sale all kinds of provisions, but here difficulties began. The Mombongo and Takoma tribes which inhabit both banks were decidedly hostile, so, as the navigation was obstructed by rocks and sandbanks, Van Gèle decided to turn back at 21° 55′ east longitude. At this point the river is a mile and a half wide and is studded with islands, the larger of which are inhabited. As Dr. Junker coming westward reached 22° 55′ on the Welle, and as both points are in 4° 20′ N. lat., there can be little doubt of the identity of the Welle and Mobangi.

GEOGRAPHICAL NEWS.—Another voyage made by Dr. Schrader up the Empress Augusta River (New Guinea) confirms his previous opinion as to the important character of this waterway, which probably rises within the Dutch portion of the island, since the *Samoa* reached a spot distant but a few miles from the boundary line, and 380 miles from the mouth of the river. Not only the main river, but several of its affluents, are navigable for long distances during the rainy season.

M. Gamak, a Russian traveler, has recently explored the Khingan range, which divides Mongolia from Manchuria. He has crossed the range four times and has explored almost its whole length.

M. Kostenko gives the population of Russian Turkistan at 2,365,648, and that of non-Russian Turkistan at 3,042,000. Of

the latter 2,000,000 are in the Khanate of Bokhara, the remainder in Khiva and Afghan Turkistan.

The Proceedings of the Royal Geog. Soc., May 1888, contains a map of Mr. F. C. Selous' explorations in the Matabele and Mashuna countries, giving the routes of the various rivers and the position of the hill ranges with greater accuracy than any other previous map.

The death is announced of the celebrated Russian, Nicholas von Miklucho-Maclay, whose name has so long been prominent in connection with explorations in New Guinea. His residence in that country impaired his health, and in 1882 he returned to Russia. After this he resided awhile in Sydney (Australia) where he founded a biological station, and then again returned to Russia, where he resided at the time of his death, at the age of forty-two years.

GEOLOGY AND PALÆONTOLOGY.

GEOLOGICAL NEWS.—SILURIAN, ETC.—Dr. John Walther, in his researches into the structure of the crinoids (Palæontographica, Band 32), traces the entire group to a bilateral ancestral form, represented by the Pelmatozoa of the Pre-Cambrian, and considers the Ateleocystites of the Lower Silurian as a reversion to this ancestral and larval form. This is followed by an "acyclical" holosymmetrical form, exemplified by Macrocystella, the oldest Cambrian Pelmatozoan. From this form two series arise—on one hand, the Cystoids, on the other, the Crinoidea.

DEVONIAN.—M. Maurice Gordon has discovered in the Valley of l'Arboust, in the Pyrenees, a schistose deposit with trilobites which are entirely new to the French fauna and ascend to an epoch that has recently been studied between the Hartz and the Ural. These trilobites include two new species of Bronteus and one each of Dalmanites, Lichas, Cyphaspis, and Harpes. M. Chas. Barrois states that the fauna is more recent than the Silurian stage of Bohemia and older than the Coblencian stage of the Devonian.

M. Chas. Barrois has identified twenty-eight species of crinoids, brachiopods, trilobites, etc., occurring in the singular sedimentary limestone of the quarry of Vallet, near Chaudefonds (France). Though this thin bed is certainly Devonian, it has not yet been correlated with the other Devonian bands of the region, but seems to form an islet in the midst of red and green schists, which are by some referred to the Lower Silurian, by others to the Upper Devonian, or even to the Carboniferous. The trilobites are Silurian, but the brachiopods and crinoids are Devonian, and the fossils, as a